

REMARKS/ARGUMENTS

Applicants thank the Examiner for the careful consideration given the present application, and respectfully request favorable reconsideration of the application in view of the comments set forth below.

Claim Rejections - 35 USC §112, ¶2

Claims 1-9, 13, 14 and 16-31 are rejected under 35 U.S.C. §112, ¶2, as being indefinite. It is explained in the Office action that it is unclear how a second frequency can be lower than a first frequency that is designated to be the “lowest frequency”. Applicants have amended the claims to clarify that it is the value of the lower limit of switching frequencies is gradually changed from a first value to a second, lower value. As amended, Applicants respectfully submit that the claims are definite in compliance with 35 U.S.C. §112.

Claim Rejections - 35 USC §102

Claims 1, 3, 13, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Bessyo (US Patent 6,362,463). The rejection is respectfully traversed for at least the following reasons.

Independent claims 1 and 3, in part, explicitly require a comparison unit for comparing a frequency-modulated signal to a lowermost limit established by a lowest frequency limiting unit as the lowermost limit is being gradually lowered. The comparison unit transmits a comparison result signal indicating which of the frequency-modulated signal and the declining lowermost limit is greater to be delivered to the drive unit for controlling operation of the semiconductor switching devices. The switching frequency of the semiconductor switching devices is set no lower than the frequency corresponding to the frequency-modulated signal and the lowermost limit, whichever is greater. By way of example, the gradually declining lowermost limit signal in Figure 6(b) of the present application eventually falls below the frequency-modulated signal. The low limit of the frequency is selected as the greatest frequency corresponding to those two signals.

Bessyo fails to teach the gradual lowering of the lowermost limit in response to activation of the high-frequency apparatus, or the comparison unit for comparing two signals such as those claimed. Bessyo also fails to teach selecting the greater frequency corresponding to the compared signals to establish the low limit of the switching frequency of the semiconductor switching devices based on such a comparison. In contrast, Bessyo describes an output frequency modulation section which delivers a signal to the driving section (see col. 13, lines 4-7). According to Bessyo, the frequency modulation section has an operation frequency around 30 KHz or below (see col. 12, lines 57-64). However, Bessyo does not describe a lowest frequency limiting unit that gradually lowers the lowermost limit to a second frequency that is less than the first frequency in response to activation of the high-frequency heating apparatus. Bessyo does not describe the transition from the 30 KHz frequency.

Further, Bessyo fails to teach a comparison of a frequency-modulated signal to a low limit signal to select the greater of the frequencies corresponding to those signals as the low limit of the switching frequencies of the switching devices. Bessyo discloses a range of operating frequencies and adjusting the operating frequency to achieve a desired output, but fails to describe selecting the greater of two frequencies based on a comparison of signals as claimed in claims 1 and 3.

For at least the above reasons, Bessyo fails to teach every limitation of claims 1 and 3 as required to maintain a rejection of those claims under 35 U.S.C. §102(b).

Claim Rejections - 35 USC § 103

Claims 2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessyo in view of Manabu (JP Patent Publication 2003-259643). However, for reasons analogous to those set forth above for claims 1 and 3, Applicants respectfully submit that the combination of Bessyo and Manabu fails to teach, suggest or otherwise render predictable the gradual lowering of the lowermost limit in response to activation of the high-frequency apparatus, or the comparison unit for comparing two signals such as those claimed. The combination also fails to teach, suggest or otherwise render predictable selecting the greater frequency corresponding to

the compared signals to establish the low limit of the switching frequency of the semiconductor switching devices based on such a comparison.

Specifically with regard to claim 2, Manabu is silent regarding such features. And as explained above, Bessyo fails to teach or suggest the claimed gradual lowering of the low limit in response to activation of the high-frequency heating, or the comparison unit for comparing two such signals to select the greater of the frequencies as the lowest limit of the switching frequency of the semiconductor switching devices.

For at least the above reasons, the combination of Bessyo and Manabu fails to teach every limitation found in claim 2 as required to maintain a rejection of that claim under 35 U.S.C. §103(a).

The remaining claims in the present application, specifically claims 4-9, 13, 14 and 16-21, are allowable for the limitations therein and for the limitations of the claims from which they depend.

In consideration of the foregoing analysis, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No.: NGB-41339.

Respectfully submitted,
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